

the others that they are each continued as two whitish streaks, but without pores, to the periphery, and beyond this towards the mouth. The pores of the same pair are united by very shallow furrows, which can be seen distinctly only in particular spots. Ambulacral plates at the same level as the interambulacral spaces; the posterior interambulacral space presents in its median line a very faint ridge-like edge, running from the vertex to the upper margin of the anal orifice.

Length 17, breadth $13\frac{2}{3}$, height 8, longitudinal diameter of mouth 2 millimètres.

Hab. The island of Adenare, at the eastern end of Flores (between Java and Timor). One specimen found, thrown up on the beach.

The only species of this genus previously known (*Nucleolites recens*, M.-Edw., from Australia) is distinguished essentially by a deep furrow in the posterior interambulacral space in which the anal orifice is situated, as also by its broader form, from our species, in which the short channel beneath the anus is the only indication of the above-mentioned furrow. We know, however, numerous species, from the Jurassic, Cretaceous, and Tertiary periods, with and without furrows uniting the ambulacral pores: most of them have the anal orifice placed higher up; but even in this respect the well-known *N. neocomensis*, Ag., agrees with our species, as indicated by the specimens in the Palæontological Collection here. The statement, "anal orifice superior," or "on the dorsal surface," which is to be found in most books among the characters of this genus, may therefore be expressed more accurately as follows:—"Anal orifice above the periphery." Desor, in his most recent elaboration of the Echinides (*Synopsis des Echinides fossiles*, 1858), divides the genus *Nucleolites* into two, according as the ambulacral pores of each pair are united by a furrow (*Nucleolites*) or not (*Echinobrissus*). The shallow, hardly perceptible furrows of the present species do not justify any such division.

I may take this opportunity of remarking that a younger specimen of *Oreaster armatus*, Gray, described by me in the 'Monatsbericht' for January 1865, p. 156 (see *Annals*, p. 433) has been described and figured by Möbius, under the name of *Goniodiscus conifer*, in the 'Abhandlungen der naturwissenschaftlichen Gesellschaft zu Hamburg,' Band iv. The difference in the determination of the genus is explained by the fact that (as Lütken has already stated, and as I find to be the case in the Indian species, of which I have series of different ages) in young specimens of *Oreaster* both the inferior and superior marginal plates assist in forming the margin—a character which is permanent in *Goniodiscus* and *Astropecten*, but undergoes a change with growth in *Oreaster*.—*Monatsber. Akad. Wiss. zu Berlin*, March 1865, p. 140.

A New American Silkworm.

After numerous experiments, Mr. L. Trouvelot, of Medford, Mass., has succeeded in rearing, and in great numbers, *Attacus Polyphemus*, Linn., and in preparing from its cocoon an excellent quality of silk,

possessing great lustre and strength, and pronounced superior to Japanese and all other silks, except the best Chinese, by competent judges.

The silk is unwound by a simple process perfected by Mr. Trouvelot, each cocoon yielding about 1500 yards. This insect is very hardy, being found throughout the Northern States and Canada, and, as it feeds upon the leaves of oak, maple, willow, and other common forest trees, may be reared easily in any part of the country.

Mr. Trouvelot has gradually increased his stock from year to year, by raising young from the eggs of the few individuals first captured, until he has at present seven waggon-loads of cocoons, the entire progeny of which he proposes to raise during the coming season.

The thanks of the country are due to the ingenious and persevering author of this successful attempt to introduce a new and interesting field for industry and enterprise, which cannot fail to be a source of profit to those who intelligently engage in it, and of increased wealth and prosperity to the people, should it be developed to the extent that now seems possible.

The first public notice of his experiments with this insect was given by Mr. Trouvelot at a meeting of the Institute of Technology, at Boston, about a year ago, when he exhibited specimens of silk manufactured from it, both natural-coloured and dyed.—*Silliman's Journal*, March 1865.

On Viviparous Fishes of the Genus Hemirhamphus.
By PROFESSOR PETERS.

Whilst most of the Sharks and Rays, with the exception only of the oviparous *Scyllia* and *Rajæ*, produce living young, the other Fishes are usually oviparous. Exceptions to this rule are comparatively rare: according to extant observations, there are only, among the Cataphracti, *Sebastes viviparus*, Kröyer (as observed by Kröyer); among the Blennii, *Zoarces viviparus*, Linn.; among the Cyprinodontes, the genera *Anableps* and *Pœcilia* (and *Molliensia*); and the whole of the Embiotocæ. Dr. Jagor, however, has made the interesting observation that certain species of the genus *Hemirhamphus* are likewise viviparous—a genus which belongs to the family of *Scomberesoces*, in the eggs of which Dr. Haeckel (Müller's Archiv, 1855, p. 23) has discovered a remarkable production of peculiar fibres between the yelk and the vitelline membrane. The species in which Dr. Jagor has discovered this mode of development are—

1. *Hemirhamphus fluviatilis*, Blkr. (*Dermogenys pusilla*, K. v. H.). “Sept. 1858, Java, island of Nusa Kumbangau, from a limestone cavity of the Beck Manundjaja; fish with embryos.”

2. *Hemirhamphus viviparus*, n. sp. Pinna caudali convexa; pinna dorsali anali brevior, radio primo post radium primum analem inserto; pinnis analibus post $\frac{9}{16}$ longitudinis totalis insertis; capite dorsoque subplanis; longitudine capitis $\frac{5}{16}$ longit. totalis æquali: flavescens, nigro irroratus, rostri apice, lineis tribus a nucha ad pinnam dorsalem extensis, membrana inter radium primum et secundum